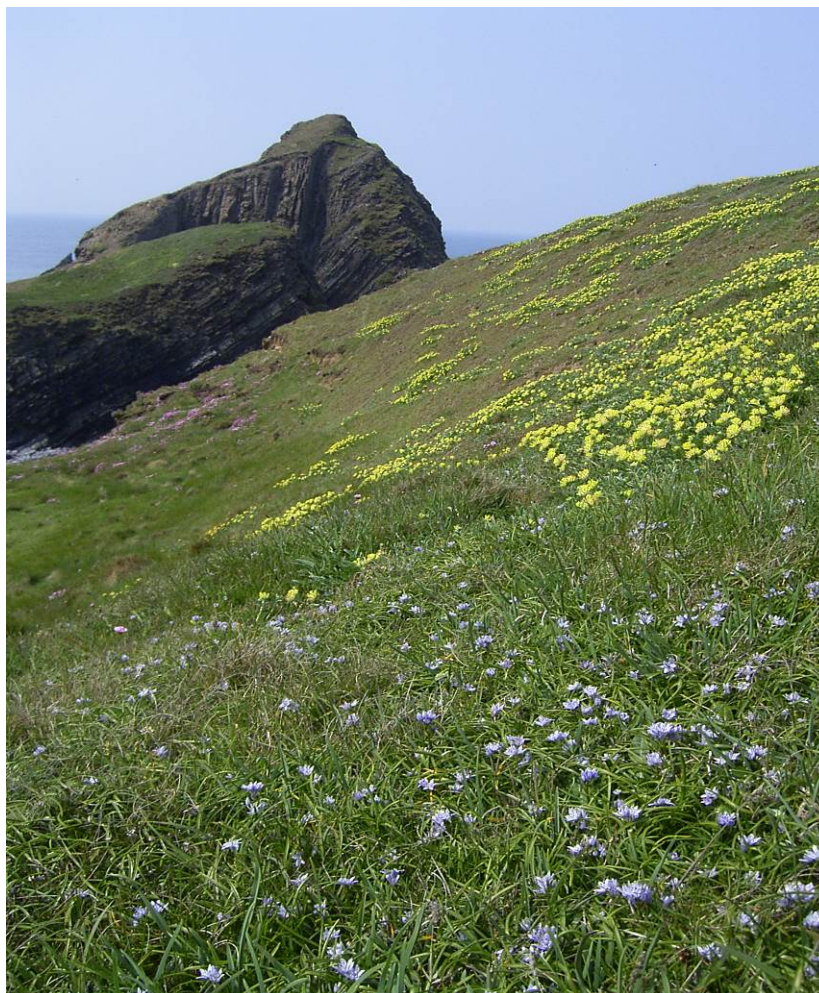




European Site Conservation Objectives: Supplementary advice on conserving and restoring site features

**Tintagel-Marsland-Clovelly Coast Special Area of Conservation (SAC)
Site Code: UK0013047**



Vegetated sea cliffs at Damehole Point, North Devon (David Boyce)

Date of Publication: 20 March 2019

About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Tintagel-Marsland-Clovelly Coast SAC.

This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

This advice replaces a draft version dated January 2019 following the receipt of comments from the site's stakeholders.

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England when developing, proposing or assessing an activity, plan or project that may affect this site.

This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.

The tables provided below bring together the findings of the best available scientific evidence relating to the site's qualifying features, which may be updated or supplemented in further publications from Natural England and other sources. The local evidence used in preparing this supplementary advice has been cited. The references to the national evidence used are available on request. Where evidence and references have not been indicated, Natural England has applied ecological knowledge and expert judgement. You may decide to use other additional sources of information.

In many cases, the attribute targets shown in the tables indicate whether the current objective is to 'maintain' or 'restore' the attribute. This is based on the best available information, including that gathered during monitoring of the feature's current condition. As new information on feature condition becomes available, this will be added so that the advice remains up to date.

The targets given for each attribute do not represent thresholds to assess the significance of any given impact in Habitats Regulations Assessments. You will need to assess this on a case-by-case basis using the most current information available.

Some, but not all, of these attributes can also be used for regular monitoring of the actual condition of the designated features. The attributes selected for monitoring the features, and the standards used to assess their condition, are listed in separate monitoring documents, which will be available from Natural England.

These tables do not give advice about SSSI features or other legally protected species which may also be present within the European Site.

If you have any comments or queries about this Supplementary Advice document please email HDIRConservationObjectivesNE@naturalengland.org.uk

About this site

European Site information

Name of European Site	Tintagel-Marsland-Clovelly Coast Special Area of Conservation (SAC)
Location	Cornwall, Devon
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 st April 2005
Qualifying Features	See section below
Designation Area	2429.84 ha
Designation Changes	Not applicable
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Boscastle to Widemouth SSSI Bude Coast SSSI Hobby to Peppercombe SSSI Marsland to Clovelly Coast SSSI Steeple Point to Marsland Mouth SSSI Tintagel Cliffs SSSI
Relationship with other European or International Site designations	Not applicable

Site background and geography

The Tintagel-Marsland-Clovelly Coast SAC is located on the Atlantic coast of northern Cornwall and Devon, from Trebarwith in the west to Peppercombe in the east. It lies predominantly within the [Culm Natural Character Area \(NCA\)](#) a largely remote and sparsely populated landscape, with the south-western tip of the SAC falling within the [Cornish Killas NCA](#). The majority of the site falls within the Cornwall Area of Outstanding Natural Beauty (AONB) and the North Devon Coast AONB whilst the South-West Coast Path National Trail, running the length of the SAC, provides ready access to this otherwise remote landscape.

The site comprises an extensive length of coastal cliff and slope with a range of maritime influences and vegetation developed on mostly neutral to acidic sedimentary rocks. The greater part of this very linear site, totalling approximately 60km, is west facing, fully exposed to Atlantic storms and therefore strongly maritime in character. The section east of Hartland Point faces north and north-east and is relatively sheltered. The majority of this coast is characterised by high (frequently over 100m), rugged, steep to sheer cliffs and headlands. The cliffs are backed by undulating coastal farmland with occasional settlements (e.g. at Tintagel, Boscastle, Bude and Clovelly).

The majority of the site is underlain by rocks of the Carboniferous Culm measures: shales and siltstones interbedded with sandstone. Exposed at the coast, these rocks produce a varied topography with headlands where rocks are more resistant between sheer cliffs containing slumped sections above inter-tidal wave-cut platforms where erosion rates are greater. These cliffs and headlands are punctuated by

steep-sided coastal valleys running roughly perpendicular to the coast and occasional sandy beaches (e.g. at Bude).

This varied coastal topography produces a complex mosaic of natural and semi-natural habitats, including exposed rock, sparse rock crevice vegetation, coastal grassland, heathland, gorse and blackthorn scrub, areas of bracken, secondary woodland and ancient oak woodland. There is an unusual stunted oak woodland at The Dizzard where trees extend down the exposed coastal slope to near sea level. Elsewhere, woodlands extend inland along the more sheltered narrow valleys (known in Devon as 'combes') and along the more sheltered coastal slopes east of Blackchurch Rock. These habitat mosaics support a diversity of vascular plants, bryophytes, lichens, invertebrates and birds.

A 'Site Improvement Plan' (SIP) has been produced for this SAC (available [here](#)).

About the qualifying features of the SAC

The following section gives you additional, site-specific information about this SAC's qualifying features. These are the natural habitats and/or species for which this SAC has been designated.

Qualifying habitats:

- **H1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts**

This SAC supports an extensive length of exposed Atlantic sea cliffs, mostly west facing and exposed to Atlantic storms and therefore strongly maritime in character. Vegetation demonstrates zonations¹ reflecting the gradual decrease in exposure and degree of salt-spray traversing up the cliffs and coastal slopes, from sparse vegetation of rock crevices, to short maritime turf, to coarse maritime grasslands and transitions to heathland, mesotrophic grasslands, bracken and scrub.

Rock crevice vegetation is characterised by thrift *Armeria maritima*, rock samphire *Crithmum maritimum* and rock sea-spurrey *Spergularia rupicola*; rock sea-lavender *Limonium binervosum* and golden samphire *Inula crithmoides* occur locally on the more exposed headlands. Maritime grasslands are characterised by red fescue *Festuca rubra*, thrift, sea plantain *Plantago maritima*, kidney vetch *Anthyllis vulneraria*, sea campion *Silene uniflora* and common scurvygrass *Cochlearia officinalis*, with Yorkshire fog *Holcus lanatus*, cock's-foot *Dactylis glomerata*, ribwort plantain *Plantago lanceolata*, wild carrot *Daucus carota* and spring squill *Scilla verna* increasingly frequent in more coarse swards further up the coastal slopes. Thin, freely-drained, summer-parched soils support a sparse 'maritime therophyte' vegetation characterised by thrift, buck's-horn plantain *Plantago coronopus*, English stonecrop *Sedum anglicum*, sea mouse-ear *Cerastium diffusum* ssp. *diffusum*, silver hair-grass *Aira caryophyllea*, least soft-brome *Bromus hordeaceus* ssp. *ferronii* and sheep's bit *Jasione montana*. On a small number of off-shore stacks, the physical disturbance and nutrient enrichment created by nesting sea-birds favours the growth of spear-leaved orache *Atriplex prostrata* and sea beet *Beta vulgaris* ssp. *maritima*.

This maritime vegetation corresponds to the following UK NVC types:

- MC1 *Crithmum maritimum* – *Spergularia rupicola* maritime rock-crevice community
- MC5 *Armeria maritima* – *Cerastium diffusum* ssp. *diffusum* maritime therophyte community
- MC6 *Atriplex prostrata* – *Beta vulgaris* ssp. *maritima* sea-bird cliff community
- MC8 *Festuca rubra* - *Armeria maritima* maritime grassland
- MC9 *Festuca rubra* – *Holcus lanatus* maritime grassland
- MC10 *Festuca rubra* – *Plantago* spp. maritime grassland
- MC11 *Festuca rubra* – *Daucus carota* maritime grassland

- **H91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles**

Also referred to as 'western acidic oak woodland', old sessile oak woods occur within the sheltered narrow valleys perpendicular to the coast (e.g. Marsland Valley) and along the more sheltered coastal slopes between Blackchurch Rock and Peppercombe. There is unusually a stunted oak woodland at The Dizzard growing on the exposed, north-westerly facing coastal slope to near sea level. These oak woods are characterised by sessile oak *Quercus petraea*, along with (less frequently) downy birch *Betula pubescens* and ash *Fraxinus excelsior* with hazel *Corylus avellana* and holly *Ilex aquifolium* in the under-storey. Ground flora varies depending upon soil type, but is variably characterised by wood-sorrel *Oxalis acetosella*, creeping soft-grass *Holcus mollis*, great wood-rush *Luzula sylvatica*, bracken *Pteridium aquilinum*, hard fern *Blechnum spicant*, scaly male-fern *Dryopteris affinis*, common male-fern *D. filix-mas*, broad buckler-fern *D. dilatata* and hay-scented buckler-fern *D. aemula*. These woodlands are also rich in bryophytes and lichens with an oceanic distribution in the British Isles and indicative of longevity of habitat continuity. The rich bryophyte flora includes Welsh pocket-moss *Fissidens celticus*, Curnow's pocket-moss *F. curnovii*, spotty featherwort *Plagiochila punctata*, prickly featherwort *P. spinulosa*,

¹ the distribution of plants or animals into specific zones according to such parameters as altitude or depth, each characterized by its dominant species.

rustwort *Nowellia curvifolia* and squirrel-tail moss *Leucodon sciuroides*. The rich lichen flora includes *Degelia atlantica*, *Enterographa hutchinsiae*, *Lobaria pulmonaria*, *L. scrobiculata*, *Nephroma laevigatum*, *Pannaria rubiginosa*, *Sticta limbata*, *S. sylvatica* and *Usnea articulata*.

Old sessile oak woodlands within this SAC have not been subject to comprehensive NVC assessment, but are likely to include one or more of the following UK NVC types:

- W10 *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* woodland
- W11 *Quercus petraea* – *Betula pubescens* – *Oxalis acetosella* woodland
- W17 *Quercus petraea* – *Betula pubescens* – *Dicranum majus* woodland

- **H4030 European dry heaths**

Dry heath vegetation usually occurs in patches within a mosaic with maritime grasslands, though more extensive stands are found in areas with more acid soils (e.g. between Buckator and Crackington). Dry heath vegetation is characterised by heather *Calluna vulgaris*, bell heather *Erica cinerea* and, in more sheltered locations, western gorse *Ulex gallii*. More exposed locations on thinner soils support an open heath structure with a diversity of associated plants including red fescue *Festuca rubra*, spring squill *Scilla verna*, wild thyme *Thymus polytrichus*, common bird's-foot-trefoil *Lotus corniculatus*, common dog-violet *Viola riviniana*, common cat's-ear *Hypochoeris radicata*, tormentil *Potentilla erecta*, saw-wort *Serratula tinctoria*, burnet rose *Rosa pimpinellifolia* and glaucous sedge *Carex flacca*.

This dry heath vegetation corresponds to the following UK NVC types:

- H7 *Calluna vulgaris* – *Scilla verna* heath
- H8 *Calluna vulgaris* – *Ulex gallii* heath

Qualifying Species:

There are no qualifying species for Tintagel-Marsland-Clovelly Coast SAC.

Table A: Presence of qualifying SAC features within component SSSIs

SSSI	SAC feature		
	H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts	H4030 European dry heaths	H91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles; Western acidic oak woodland
Boscastle to Widemouth SSSI	✓	✓	✓
Bude Coast SSSI	✓	✓	
Hobby to Peppercombe SSSI			✓
Marsland to Clovelly Coast SSSI	✓	✓	✓
Steeple Point to Marsland Mouth SSSI	✓	✓	✓
Tintagel Cliffs SSSI	✓	✓	

Table 1: Supplementary Advice for Qualifying Features: H1230. Vegetated sea cliffs of the Atlantic and Baltic coasts

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution	Extent of hard or soft cliff capable of supporting sea cliff vegetation	Maintain the total extent of the cliff system which is capable of supporting H1230 sea cliff vegetation to 52 km.	<p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis. The whole system acts to provide the range and variation of vegetation types and mosaics with bare ground. Extent may be measured in different ways but there are issues with measuring area of vertical cliffs. Reduction in extent can include smothering cliff slope, cliff foot or cliff top surfaces by artificial or dumped materials or growth of invasive non-native species such as Rhododendron.</p> <p>The target of 52km is an approximate measure based upon Ordnance Survey (OS) maps, excluding those sections of wooded cliffs (The Dizzard, Blackchurch Rock to Clovelly and Hobby to Peppercombe). This length is derived by measuring linear sections between significant headlands and embayments rather than the more intricate length of mean high or low water as defined by the OS which would produce a far greater but arguably misleading measurement.</p> <p>NVC surveys have been carried out for the Cornwall component SSSIs (see references in 'Sources of site-based</p>	<p>NVC surveys have been carried out for the Cornwall component SSSIs as follows:</p> <p>CORNWALL ENVIRONMENTAL CONSULTANTS LTD, 2004. <i>Bude SSSI & Steeple Point to Marsland Mouth SSSI National Vegetation Classification Survey 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Tintagel Cliffs SSSI, Cornwall, 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Boscastle to Widemouth SSSI, Cornwall, 2003-2004</i>. Unpublished. Available from Natural England on request.</p> <p>NATIONAL TRUST, 2007. <i>National Trust Nature Conservation evaluation, Brownsham, Devon, 2007</i>. Unpublished.</p> <p>NATIONAL TRUST, 2008. <i>National Trust Biological Survey 2008, Welcombe, North Devon</i>. Unpublished.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>evidence). These NVC surveys report a cumulative total of approximately 109 ha of maritime cliff (MC) communities. But this must be treated as a minimal extent given that it excludes transitional and mosaic stands of vegetation which contain an element of maritime vegetation and does not include either of the Devon component SSSIs.</p> <p>The area of “maritime cliff, maritime grassland” within Marsland to Clovelly Coast SSSI has been estimated as 270.4 ha based upon interpretation of aerial photographs from 2001 (Natural England 2009). However, this estimate is likely to include areas of habitat which would not meet the definition for 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts, so the extent of H1230 vegetation on this stretch will be less than this.</p> <p>Phase 1 habitat maps from the 1980s are available for component SSSIs in north Devon, but coverage is not complete and they are at a large scale.</p>	<p>NATURAL ENGLAND, 2009. <i>Marsland to Clovelly Coast SSSI Favourable Condition Table. Version 6.1 February 2009.</i> Available from Natural England on request.</p>
Extent and distribution	Spatial distribution of the feature within the site	Maintain the distribution and continuity of the habitat and any associated transitions which reflects the natural functioning of the cliff system	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature. Transitions include cliff top and cliff foot transitions to terrestrial or marine habitats.</p>	See sources in ‘Extent’ attribute, above.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution	Future extent of habitat within the site and ability to respond to seasonal changes	Maintain active processes such that the system can adjust to longer-term natural change, including landward recession, and that fluctuations in the extent of vegetated areas to bare rock occur over time and space within the site.	<p>This recognises the need to allow for natural fluctuations in the extent and the distribution of this habitat feature, often during particular seasons and usually as a result of natural coastal processes.</p> <p>There are very few coastal defences along this largely sparsely populated coastline which would constrain natural coastal processes.</p>	
Structure and function (including its typical species)	Geomorphological naturalness	Maintain the geomorphological naturalness of the sea cliff system, from cliff top to foreshore connection with the intertidal zone	The physical landforms associated with this habitat feature, and the processes that shape them, will be a primary influence on sea-cliff habitat. A key criteria for selecting SACs for this habitat feature was that they had no or minimal artificial modification and so demonstrates good geomorphological naturalness. Having a well-developed sea-cliff structure, shaped by natural geomorphological processes, will ensure the full range of natural variation can occur.	
Structure and function (including its typical species)	Presence of mosaic of microhabitats	Maintain the diversity and range of microhabitats and bare areas resulting from active coastal processes/landslips	<p>Each site will have a different configuration of geology and hydrology and maritime exposure, which will also change over time and space. The key aim is to maintain the full, naturally expected range of these in as natural a state as possible.</p> <p>NVC surveys (see 'Extent' attribute, above) and aerial photographs may help identify locations, extent and trends.</p>	
Structure and function (including its typical species)	Regeneration potential	Maintain semi-natural vegetation on the cliff-top either within and/or beyond the site boundary as appropriate, and its connectivity with the lower cliff slopes.	<p>This is important to ensure that there is a continuous supply of seed-rich semi-natural vegetation material from the clifftops to feed the sea-cliff system below. As the top of the cliff slumps and recedes as a result of natural processes, the vegetation dropping onto the lower slopes should provide suitable material for their re-colonisation with native plant species from adjacent semi-natural habitats above.</p> <p>The width of semi-natural vegetation along the cliff-top varies throughout this linear site. The widening/extension of appropriate semi-natural habitat, without alien or exotic species, adjacent to the cliff zone would provide a buffer to the SAC.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat:</p> <p>Site-distinctive Vascular Plant Assemblage, including: wild chives <i>Allium schoenoprasum</i>; maidenhair fern <i>Adiantum capillus-veneris</i>; autumn squill <i>Scilla autumnalis</i>; golden samphire <i>Inula crithmoides</i>; hairy bird's-foot-trefoil <i>Lotus subbiflorus</i>; Babington's leek <i>Allium ampeloprasum</i> var. <i>babingtonii</i>; lanceolate spleenwort <i>Asplenium obovatum</i>; rock sea-lavender <i>Limonium binervosum</i> agg. dyer's greenweed <i>Genista tinctoria</i> ssp. <i>littoralis</i>; western clover <i>Trifolium occidentale</i>; prostrate broom <i>Cytisus scoparius</i> ssp. <i>maritimus</i>.</p>	<p>Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include;</p> <ul style="list-style-type: none"> • Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) • Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. <p>There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available.</p>	Favourable Condition Tables for component SSSIs (available from Natural England on request) and component SSSI citations (available on Natural England's Designated Sites System)
Structure and function (including its typical species)	Vegetation community composition	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types:</p> <ul style="list-style-type: none"> • MC1 <i>Crithmum maritimum</i> – <i>Spergularia</i> 	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be</p>	CORNWALL ENVIRONMENTAL CONSULTANTS LTD, 2004. <i>Bude SSSI & Steeple Point to Marsland Mouth SSSI National Vegetation Classification Survey 2002</i> . Unpublished. Available from Natural England on request.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p><i>rupicola</i> maritime rock-crevice community</p> <ul style="list-style-type: none"> • MC5 <i>Armeria maritima</i> – <i>Cerastium diffusum</i> ssp. <i>diffusum</i> maritime therophyte community • MC6 <i>Atriplex prostrata</i> – <i>Beta vulgaris</i> ssp. <i>maritima</i> sea-bird cliff community • MC8 <i>Festuca rubra</i> - <i>Armeria maritima</i> maritime grassland • MC9 <i>Festuca rubra</i> – <i>Holcus lanatus</i> maritime grassland • MC10 <i>Festuca rubra</i> – <i>Plantago</i> spp. maritime grassland • MC11 <i>Festuca rubra</i> – <i>Daucus carota</i> maritime grassland • H7 <i>Calluna vulgaris</i> – <i>Scilla verna</i> heath; • H8 <i>Calluna vulgaris</i> – <i>Ulex gallii</i> heath. • MG1 <i>Arrhenatherum elatius</i> grassland • U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland • M25 <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire • W22 <i>Prunus spinosa</i> – <i>Pteridium aquilinum</i> scrub • W23 <i>Ulex europaeus</i> – <i>Rubus fruticosus</i> agg. 	<p>important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations). The presence, composition, location and extent of maritime scrub, heath and/or grassland, plus mosaics of the three, on cliff slopes or cliff tops will be determined by the interaction of natural geomorphological processes with exposure and soil characteristics and management where relevant.</p> <p>The SAC encompasses all semi-natural NVC communities growing on the cliffs. The most site-distinctive of these are the maritime vegetation communities, but there are also transitions to mesotrophic grasslands, acid grasslands, acid ground-water flushes, scrub and bracken. There are many vegetation community types recorded from within this SAC; those listed here are considered either the most site-distinctive and/or most extensive. This list of NVC communities is not exhaustive; see the NVC survey reports for a comprehensive list.</p> <p>Heath communities are listed here as they are present in vegetative mosaics and transitions with other community types on the vegetated cliffs of this SAC. These communities also comprise the H4030 European dry heaths within this SAC and Table 2 should be referred to for all relevant attributes.</p>	<p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Tintagel Cliffs SSSI, Cornwall, 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Boscastle to Widemouth SSSI, Cornwall, 2003-2004</i>. Unpublished. Available from Natural England on request.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		scrub <ul style="list-style-type: none"> W24 <i>Rubus fruticosus</i> agg. – <i>Holcus lanatus</i> underscrub W25 <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> agg. underscrub 		
Structure and function (including its typical species)	Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; Native species: <ul style="list-style-type: none"> creeping thistle <i>Cirsium arvense</i>; spear thistle <i>Cirsium vulgare</i>; perennial rye-grass <i>Lolium perenne</i>; broad-leaved dock <i>Rumex obtusifolius</i>; curled dock <i>Rumex crispus</i>; ragwort <i>Senecio jacobaea</i>; white clover <i>Trifolium repens</i>; stinging nettle <i>Urtica dioica</i>; creeping-bent <i>Agrostis stolonifera</i>; cock's-foot <i>Dactylis glomerata</i>; Yorkshire-fog <i>Holcus lanatus</i>; bracken <i>Pteridium aquilinum</i>; 	<p>Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants. There are a range of non-native plants affecting coastal cliffs, and due to difficulties of access, these often pose problems with management. The key objective is to prevent any introductions or planting. This includes the dumping of spoil or organic waste on cliff tops or slopes within or beyond the site boundary which may contain plant seeds or propagules or enrich the site.</p> <p>A distinction should be made between native undesirable species and non-native invasive species. The former may be characteristic species which contribute to species diversity, vegetation structure and feeding opportunities for native fauna and may legitimately occur within acceptable limits. The latter should ideally be absent, though this may not be practical to achieve and where this is the case they should be no more than rare within the site.</p> <p>Nitrophilous 'weeds' should be no more than rare.</p> <p>In stands of maritime grassland in more exposed locations coarse grasses such as <i>Agrostis stolonifera</i>, <i>Dactylis glomerata</i> and <i>Holcus lanatus</i> should be sub-dominant to <i>Festuca rubra</i>.</p> <p>In stands of maritime grassland bracken <i>Pteridium aquilinum</i>, European gorse <i>Ulex europaeus</i> and blackthorn should be no</p>	Favourable Condition Tables for component SSSIs (available from Natural England on request) and records of site condition assessments (available on Natural England's Designated Sites System).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<ul style="list-style-type: none"> European gorse <i>Ulex europaeus</i>; blackthorn <i>Prunus spinosa</i>. <p>Non-native species:</p> <ul style="list-style-type: none"> hottentot fig <i>Carpobrotus edulis</i>; montbretia <i>Crocsmia aurea x pottsii</i> (<i>C. x crocosmiflora</i>); Japanese knotweed <i>Fallopia japonica</i>; cotoneaster <i>Cotoneaster</i> spp.; three-cornered leek <i>Allium triquetrum</i>. 	more than occasional, though these species may legitimately form part of vegetative mosaics with maritime communities or form larger stands as part of the overall vegetation zonation.	
Supporting processes (on which the feature relies)	Air quality	Maintain the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH ₃), oxides of nitrogen (NO _x) and sulphur dioxide (SO ₂), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.	<p>More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).</p> <p>Vegetated sea cliffs are not considered sensitive to acid deposition. Critical levels for oxides of nitrogen (NO_x) and sulphur dioxide (SO₂) are not exceeded for this habitat type. No critical load / concentration is defined for nutrient nitrogen nor ammonia (NH₃) for this habitat, though it is known to be "sensitive" to nitrogen. Based upon this, the target is set to maintain at or below current levels of air pollutants for this habitat, but its potential sensitivity</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				to nitrogen means this should be kept under review.
Supporting processes (on which the feature relies)	Cliff morphology, slope and elevation	Maintain the natural processes that determine cliff morphology, slope and elevation.	These physical components greatly influence the structure of this habitat type. Allowing natural dynamic processes to operate is important to providing optimal conditions which will allow the long-term conservation of this habitat feature. Interruption of these processes, through partial stabilisation or slowing of cliff erosion and recession rates, with artificial management of cliff slope vegetation, does not produce naturally-occurring conditions which could lead to undesirable changes in characteristic sea cliff vegetation.	Aerial photographs, Ordnance Survey maps and records of site condition assessments for component SSSIs (the latter available on Natural England's Designated Sites System).
Supporting processes (on which the feature relies)	Maritime exposure including salt spray effects	Maintain an appropriate degree of exposure to maritime effects, such as salt spray, both from regular inputs and storm events.	Excessive exposure to salt spray can cause episodic die-back of sea cliff vegetation in some circumstances, although this may not be applicable to all sites.	
Supporting processes (on which the feature relies)	Physical features supporting vegetation: crevices, ledges, isolated stacks etc	Maintain the associated physical components of the vegetated cliff feature (crevices, ledges, isolated stacks) with changes to them determined by natural processes only	Cliff structure and geomorphological processes are major influences on sea-cliff vegetation. 'Hard' cliffs with vertical or very steep faces are characteristic of hard igneous, metamorphic and sedimentary rocks. More mobile 'Soft' cliffs have a sloping or slumped profile, often with a distinct 'undercliff'; these occur on a range of soft rocks, or on hard rocks interspersed with softer deposits and may be subject to mudslides or landslips. These processes all create smaller structural elements such as ledges, crevices and stacks which create complexes of pioneer and more mature vegetation which are typical of this habitat feature.	Aerial photographs, Ordnance Survey maps and records of site condition assessments for component SSSIs (the latter available on Natural England's Designated Sites System).
Supporting processes (on which the feature relies)	Hydrology/ drainage	At a site, unit and/or catchment level maintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.	
Supporting processes	Water quality	Where the feature is dependent on surface water and/or	For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(on which the feature relies)		groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature.	the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: Reference to “soft cliff pioneer vegetation . . . etc” has been removed from the ‘Supporting and Explanatory Notes’ for the attribute ‘ Key structural, influential and/or distinctive species ’ as these have not been recorded as significant features within this SAC. Although some sections of argillaceous rocks (shale, etc) are friable and prone to slumping and rock-falls, the vegetation they support at this SAC is synonymous with typical hard cliff communities. Reference to “heath communities” has also been removed as these are addressed in Table 2. Reference to chalk cliffs has been removed from the ‘supporting and Explanatory Notes’ for the attribute ‘ Physical features supporting vegetation: crevices, ledges, isolated stacks etc ’ as this rock type is not present at this SAC.				

Table 2: Supplementary Advice for Qualifying Features: H4030. European dry heaths

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Maintain the total extent of the feature.	<p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis.</p> <p>There is approximately 190 ha of H4030 European dry heath in the site. However, further work is required to refine this estimate into a robust baseline extent for the site. The estimate has been derived from a number of sources:</p> <p>NVC surveys have been carried out for the Cornwall component SSSIs (see references in 'Sources of site-based evidence'). These NVC surveys report a cumulative total of approximately 131.5 ha of heath (H) communities. But this must be treated as a minimal extent given that it excludes transitional and mosaic stands of vegetation which contain an element of heath communities.</p> <p>The area of "maritime heath" within Marsland to Clovelly Coast SSSI has been estimated as 58.5 ha based upon interpretation of aerial photographs from 2001 (Natural England 2009). There is no significant amount of heath vegetation within Hobby</p>	<p>NVC surveys have been carried out for the Cornwall component SSSIs as follows:</p> <p>CORNWALL ENVIRONMENTAL CONSULTANTS LTD, 2004. <i>Bude SSSI & Steeple Point to Marsland Mouth SSSI National Vegetation Classification Survey 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Tintagel Cliffs SSSI, Cornwall, 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Boscastle to Widemouth SSSI, Cornwall, 2003-2004</i>. Unpublished. Available from Natural England on request.</p> <p>Other sources:</p> <p>NATIONAL TRUST, 2007. <i>National Trust Nature Conservation evaluation, Brownsham, Devon, 2007</i>. Unpublished.</p> <p>NATIONAL TRUST, 2008. <i>National Trust Biological Survey</i></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>to Peppercombe SSSI.</p> <p>Phase 1 habitat maps from the 1980s are available for component SSSIs in north Devon, but coverage is not complete and they are at a large scale.</p>	<p>2008, <i>Welcombe, North Devon</i>. Unpublished.</p> <p>NATURAL ENGLAND, 2009. <i>Marsland to Clovelly Coast SSSI Favourable Condition Table. Version 6.1 February 2009</i>. Available from Natural England on request.</p>
Extent and distribution of the feature	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.	See sources in 'Extent' attribute, above.
Structure and function (including its typical species)	Adaptation and resilience	Maintain the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in	NATURAL ENGLAND. 2015. <i>Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England</i> . Available at: http://publications.naturalengland.org.uk/publication/4954594591375360

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being moderate, taking into account the sensitivity, fragmentation, topography and management of its habitats. This means that this site is considered to be vulnerable overall but moderately so. This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p>	
Structure and function (including its typical species)	Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p> <p>The SAC is a (more or less) contiguous linear mosaic of semi-natural habitats which is conducive to ecological connectivity. There may be some locations in the future where coastal erosion results in breaks or 'bottlenecks' in this connectivity which may require changes in management of land immediately out-with the SAC boundary.</p>	NVC surveys (see references in 'Extent' attribute), aerial photographs, Ordnance Survey maps.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	National Soil Map of England and Wales – NATMAP (see http://www.landis.org.uk/data/natmap.cfm)
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat; Structural species: heather <i>Calluna vulgaris</i> ; bell heather <i>Erica cinerea</i> ; western gorse <i>Ulex gallii</i>	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include; • Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) • Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available.	Favourable Condition Tables for component SSSIs (available from Natural England on request) and component SSSI citations (available on Natural England's Designated Sites System)
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation communities of the feature are referable to and	This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil	CORNWALL ENVIRONMENTAL CONSULTANTS LTD, 2004. <i>Bude SSSI & Steeple Point to</i>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		<p>characterised by the following National Vegetation Classification types:</p> <ul style="list-style-type: none"> • H7 <i>Calluna vulgaris</i> – <i>Scilla verna</i> heath; • H8 <i>Calluna vulgaris</i> – <i>Ulex gallii</i> heath. 	<p>conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).</p>	<p><i>Marsland Mouth SSSI National Vegetation Classification Survey 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Tintagel Cliffs SSSI, Cornwall, 2002</i>. Unpublished. Available from Natural England on request.</p> <p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Boscastle to Widemouth SSSI, Cornwall, 2003-2004</i>. Unpublished. Available from Natural England on request.</p>
Structure and function (including its typical species)	Vegetation community transitions	<p>Maintain any areas of transition between this and communities which form other heathland-associated habitats, such as dry and humid heaths, mires, acid grasslands, scrub and woodland.</p>	<p>Transitions / zonations between adjacent but different vegetation communities are usually related to naturally-occurring changes in soil, aspect or slope. Such 'ecotones' retain characteristics of each bordering community and can add value in often containing species not found in the adjacent communities. Retaining such transitions can provide further diversity to the habitat feature, and support additional flora and fauna. This is an important attribute as many characteristic heathland species utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle.</p>	<p>See sources cited for 'Extent of the feature within the site' attribute</p>
Structure and function (including its typical species)	Vegetation composition: bracken cover	<p>Maintain a cover of dense bracken which is low, typically at <5%</p>	<p>The spread of bracken <i>Pteridium aquilinum</i> is a problem on many lowland heathlands. The unpalatable nature and density of bracken as a tall-herb fern, and its decomposing litter, can smother and shade out smaller and more characteristic heathland vegetation. Usually active management of bracken is required to reduce or contain its cover across this habitat feature. But this fern has also some nature conservation value, for example on sites where fritillary butterflies occur and utilise bracken litter habitat.</p>	<p>Favourable Condition Tables (FCT) for component SSSIs (available from Natural England on request).</p> <p>JNCC, 2009. <i>Common Standards Monitoring Guidance for Lowland Heathland. Version February 2009</i>. JNCC. Available</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				at: http://jncc.defra.gov.uk/page-2234
Structure and function (including its typical species)	Vegetation structure: cover of dwarf shrubs	Maintain an overall cover of dwarf shrub species which is typically between 25-90%	<p>Variations in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) is needed to maintain high niche diversity and hence high species richness of characteristic heathland plants and animals. Many species also utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle. The structural character of the heathland feature is strongly influenced by the growing habits of its dominant species which in most cases will be ericoids (i.e. plants that look like heathers, including members of the Ericaceae and Empetraceae families). The ericaceous species heather or ling <i>Calluna vulgaris</i> and bell heather <i>Erica cinerea</i> are the most characteristic dwarf-shrubs. Western gorse <i>Ulex gallii</i>, whilst not an ericoid, also forms a significant element of the dwarf shrub vegetation in more sheltered areas (NVC: H8).</p> <p>Maritime heath (NVC: H7) in exposed locations may have a relatively low dwarf-shrub cover, hence the lower limit set at 25%. The upper limit is set to reflect the more dense structure of heathland in more sheltered locations (NVC: H8).</p>	<p>Favourable Condition Tables (FCT) for component SSSIs (available from Natural England on request).</p> <p>JNCC, 2009. <i>Common Standards Monitoring Guidance for Lowland Heathland. Version February 2009.</i> JNCC. Available at: http://jncc.defra.gov.uk/page-2234</p>
Structure and function (including its typical species)	Vegetation structure: cover of gorse	Maintain cover of common gorse <i>Ulex europaeus</i> at <25% and the combined cover of <i>U. europaeus</i> and <i>U. gallii</i> at <50%	<p>Gorse as a component of heathland is a very valuable wildlife habitat, and often a marker of relict heath and common. Both dense and spiny, it provides good, protected cover for many wildlife species: birds, mammals and reptiles; breeding habitat for rare or declining bird species, and excellent winter roosting. The flowers, borne at a time of year when other sources of pollen or nectar are in short supply, are particularly good for insects and other invertebrate pollinators. However gorse may cause problems if unchecked by dominating an area, eliminating other typical heathland species. Mature stands <i>en masse</i> may also be serious fire hazards.</p> <p>In stands of H8 <i>Calluna vulgaris</i> – <i>Ulex gallii</i> heath a high cover of <i>U. gallii</i> does not necessarily infer inappropriate management</p>	<p>Favourable Condition Tables (FCT) for component SSSIs (available from Natural England on request).</p> <p>JNCC, 2009. <i>Common Standards Monitoring Guidance for Lowland Heathland. Version February 2009.</i> JNCC. Available at: http://jncc.defra.gov.uk/page-2234</p>
Structure and function	Vegetation structure: tree	Maintain the open character of the feature, with a typically	Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually very important in providing warmth,	Favourable Condition Tables (FCT) for component SSSIs

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(including its typical species)	cover	scattered and low cover of trees and scrub: <15% cover	shelter, cover, food-plants, perches, territorial markers and sources of prey for typical heathland invertebrates and vertebrates. But overall cover of scrub and trees across this habitat feature should be maintained or restored to a fairly sparse level, with a structurally complex edge and with characteristic heathland vegetation as ground cover. If scrub is locally important for any associated species with their own specific conservation objectives, then a higher level of cover will be acceptable. The area of scrub/tree cover should be stable or not increasing as a whole.	(available from Natural England on request). JNCC, 2009. <i>Common Standards Monitoring Guidance for Lowland Heathland. Version February 2009.</i> JNCC. Available at: http://jncc.defra.gov.uk/page-2234
Structure and function (including its typical species)	Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread: Nitrophilous weeds: <ul style="list-style-type: none"> • creeping thistle <i>Cirsium arvense</i>; • spear thistle <i>Cirsium vulgare</i>; • broad-leaved dock <i>Rumex obtusifolius</i>; • curled dock <i>Rumex crispus</i>; • ragwort <i>Senecio jacobaea</i>; • stinging nettle <i>Urtica dioica</i>. Non-native species: <ul style="list-style-type: none"> • hottentot fig <i>Carpobrotus edulis</i>; • montbretia <i>Crocasmia aurea x pottsii</i> (<i>C. x crocosmiflora</i>); • Japanese knotweed <i>Fallopia japonica</i>; 	Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants. Nitrophilous 'weeds' and non-native invasive species should be <1% cover.	Favourable Condition Tables (FCT) for component SSSIs (available from Natural England on request). JNCC, 2009. <i>Common Standards Monitoring Guidance for Lowland Heathland. Version February 2009.</i> JNCC. Available at: http://jncc.defra.gov.uk/page-2234

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<ul style="list-style-type: none"> cotoneaster <i>Cotoneaster</i> spp.; three-cornered leek <i>Allium triquetrum</i>. 		
Supporting processes (on which the feature relies)	Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	<p>This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH₃), oxides of nitrogen (NO_x) and sulphur dioxide (SO₂), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p> <p>Critical levels for acid deposition, oxides of nitrogen (NO_x) and sulphur dioxide (SO₂) are not exceeded at this SAC for this habitat type.</p> <p>Levels of nutrient nitrogen deposition and ammonia (NH₃) exceed the maximum critical loads / concentrations for European dry heaths at this SAC. Based upon this, the target is set to restore to at or below site-relevant critical loads / levels of air pollutants for this habitat.</p>	<p>More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).</p> <p>NATURAL ENGLAND, 2015. <i>Tintagel - Marsland - Clovelly Coast Site Improvement Plan. Version 1.0</i>. Available at: http://publications.naturalengland.org.uk/publication/5064451946446848</p>
Supporting processes (on which the feature relies)	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This	Views About management (VAM) for component SSSIs (available on Natural England's Designated Sites System).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		to Maintain the structure, functions and supporting processes associated with the feature	<p>information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>Maintain low nutrient levels to maintain high numbers of species through the management activities of grazing, burning, mowing and scrub/tree cutting. Management of succession is a critical aspect of management for this habitat, by a combination of active processes and grazing/cutting.</p> <p>A range of invertebrates and plants require bare ground/peat where it is not too frequently disturbed by vehicles or feet.</p>	<p>NATURAL ENGLAND, 2015. <i>Tintagel - Marsland - Clovelly Coast Site Improvement Plan</i>. Available at: http://publications.naturalengland.org.uk/publication/5064451946446848</p>
Supporting processes (on which the feature relies)	Water quality	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature.	For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.	
Supporting processes (on which the feature relies)	Hydrology	At a site, unit and/or catchment level maintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.	
Version Control				
Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance:				

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<p>The description of characteristic dwarf shrub flora given in 'Supporting and Explanatory Notes' for the attribute 'Vegetation structure: cover of dwarf shrubs' has been modified to better reflect the flora of coastal heaths in this part of South West England.</p> <p>The target for the attribute 'Vegetation structure: tree cover' is revised from <20% to <15% in order to be consistent with targets given in Favourable Condition Tables (FCT) for component SSSIs, which are in turn adopted from the default target given in <i>Common Standards Monitoring Guidance for Lowland heathland</i>, JNCC, 2009.</p> <p>The attribute 'Vegetation structure: heather age structure' has been removed in its entirety because the large majority of coastal heath at this site occurs on steep coastal slopes where the necessary management to maintain each phase of growth associated with the characteristic heathers is not practicable due to issues of access and safety. Exposure to Atlantic gales and other natural processes may produce a range of structural conditions throughout the site, though not necessarily related to age. Individual stands, however, may not necessarily demonstrate such structural diversity within the stand. Many stands are naturally small in extent and occur within a habitat mosaic, and this juxtaposition with other habitats often produces structural diversity <i>in lieu</i> of age structure.</p>			

Table 3: Supplementary Advice for Qualifying Features: H91A0. Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles; Western acidic oak woodland

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Maintain the total extent of the feature at 318 ha.	<p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations.</p> <p>Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis. For this feature tree roots (particularly of veteran trees) can extend a considerable distance beyond the boundary of the site - they can be impacted by soil compaction (such as caused by vehicles or construction works); agricultural operations or other soil disturbance (like trenches); and agro chemicals or other chemicals which get into the soil. Any loss of woodland area - whether at the edge or in the middle of a site will reduce the core woodland area where woodland conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example). Loss of any woodland area which fragments a site into different parts will clearly disturb the movement of species between the remaining parts of the woodland.</p> <p>The woodlands within this SAC have not been subject to any</p>	<p>SPALDING ASSOCIATES LTD, 2005. <i>National Vegetation Survey of Boscastle to Widemouth SSSI, Cornwall, 2003-2004</i>. Unpublished. Available from Natural England on request.</p> <p>NATURAL ENGLAND, 2009. <i>Marsland to Clovelly Coast SSSI Favourable Condition Table. Version 6.1 February 2009</i>. Available from Natural England on request.</p> <p>NATURAL ENGLAND, 2012. <i>Steeple Point to Marsland Mouth SSSI Favourable Condition Table. Version September 2012</i>. Available from Natural England on request.</p> <p>NATURAL ENGLAND, 2017. <i>Hobby to Peppercombe SSSI Favourable Condition Table. Version 5 February 2017</i>. Available from Natural England on request.</p> <p>The Ancient Woodlands (England) spatial dataset is available at: https://data.gov.uk/dataset/9461f463-c363-4309-ae77-fdcd7e9df7d3/ancient-woodlands-</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>comprehensive NVC survey. A distinction needs to be made between the old sessile oak woods and other woodland types, mainly secondary woodlands characterised by sycamore <i>Acer pseudoplatanus</i>. There is no sessile oak woodland in Tintagel Cliffs or Bude Coast component SSSIs.</p> <p>The Ancient Woodland Inventory for England maps 318 ha of Ancient Semi-Natural Woodland within the SAC. The majority of this is likely to be old sessile oak woodland and this is adopted as the best estimate of extent for the A91A0 woodland feature.</p> <p>Spalding Associates (2005) identifies 33 ha of oak woodland at The Dizzard. Woodland cover has been estimated from aerial photographs: 82 ha in Steeple Point to Marsland Mouth SSSI (2001 aerial photographs), 199 ha in Marsland to Clovelly Coast SSSI (2001 aerial photographs) and 137 ha in Hobby to Peppercombe SSSI (2013 aerial photographs). However, these estimates of woodland cover include a range of woodland types, not just Western acidic oak woodland.</p>	england
Extent and distribution of the feature	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.	<p>See sources in 'Extent' attribute, above.</p> <p>SMITH, J., 2006. <i>Woodland Survey: Marsland to Clovelly Coast Site of Special Scientific Interest (SSSI)</i>. Mosaic Mapping, unpublished. Available from Natural England on request.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			The Ancient Woodland Inventory for England maps the distribution of Ancient Semi-Natural Woodland within the SAC. The woodlands within this SAC have not been subject to any comprehensive NVC survey.	
Structure and function (including its typical species)	Adaptation and resilience	Maintain the resilience of the feature by ensuring a diversity (at least 2 species) of site-native trees across the site.	<p>This recognises the increasing likelihood of natural habitat features needing to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability. However, sessile oak should remain dominant in the woodland canopy of ancient stands.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being moderate, taking into account the sensitivity, fragmentation, topography and management of its habitats. This means that this site is considered to be vulnerable overall but moderately so. This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p>	
Structure and function (including its	Browsing and grazing by herbivores	Restore browsing at a (low) level that allows well developed understorey with no obvious	Herbivores, especially deer, are an integral part of woodland ecosystems. They are important in influencing woodland regeneration, composition and structure and therefore in	Condition assessments within component SSSIs (available on Natural England's Designated

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy <i>etc</i>), and tree seedlings and sapling common in gaps.	<p>shaping woodland wildlife communities. In general, both light grazing and browsing is desirable to promote both a diverse woodland structure and continuous seedling establishment. Short periods with no grazing at all can allow fresh natural regeneration of trees, but a long-term absence of herbivores can result in excessively dense thickets of young trees which shade out ground flora and lower plant species. However, heavy grazing by deer or sheep prevents woodland regeneration, and can cause excessive trampling and/or poaching damage, canopy fragmentation, heavy browsing, bark-stripping and a heavily grazed sward.</p> <p>Target set to Restore because some stands have been assessed as unfavourable (see SSSI condition assessments) due to a lack of natural regeneration which has been attributed in part to excessive deer browsing. There are significant populations of roe deer <i>Capreolus capreolus</i> and red deer <i>Cervus elaphus</i> in this part of north Cornwall and north Devon.</p>	<p>Sites System).</p> <p>NATURAL ENGLAND, 2015. <i>Tintagel - Marsland - Clovelly Coast Site Improvement Plan</i>. Available at: http://publications.naturalengland.org.uk/publication/5064451946446848</p>
Structure and function (including its typical species)	Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the feature	<p>Invasive or introduced non-native species are a serious potential threat to the biodiversity of native and ancient woods, because they are able to exclude, damage or suppress the growth of native tree, shrub and ground species (and their associated typical species), reduce structural diversity and prevent the natural regeneration of characteristic site-native species. Once established, the measures to control such species may also impact negatively on the features of interest (e.g. use of broad spectrum pesticides).</p> <p>Such species can include rhododendron, snowberry, Japanese knotweed, giant hogweed, montbretia and Himalayan balsam, for example. Similarly, this would include pheasants (including the effects of pheasant rearing/release pens), rabbits and non-native invertebrate 'pest' species.</p>	<p>SMITH, J., 2006. <i>Woodland Survey: Marsland to Clovelly Coast Site of Special Scientific Interest (SSSI)</i>. Mosaic Mapping, unpublished. Available from Natural England on request.</p> <p>NATURAL ENGLAND, 2015. <i>Tintagel - Marsland - Clovelly Coast Site Improvement Plan</i>. Available at: http://publications.naturalengland.org.uk/publication/5064451946446848</p>
Structure and function (including its typical)	Regeneration potential	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of	The regeneration potential of the woodland feature must be maintained if the wood is to be sustained and survive, both in terms of quantity of regeneration and in terms of appropriate species. This will Include regeneration of the trees and shrubs	Condition assessments within component SSSIs (available on Natural England's Designated Sites System).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
species)		desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate.	<p>from saplings or suckers, regrowth from coppice stools or pollards, and where appropriate planting. Browsing and grazing levels must permit regeneration at least in intervals of 5 years every 20. The density of regeneration considered sufficient is less in parkland sites than in high forest.</p> <p>Target set to Restore because some stands have been assessed as unfavourable (see SSSI condition assessments) due to a lack of natural regeneration. This has been attributed in part to excessive deer browsing, but sessile oak does not abundantly regenerate under shady closed tree canopy and regeneration potential may be greatest in open areas created around the edges of sessile oak stands.</p> <p>The genetic integrity of the sessile oak within the SAC is particularly important (it includes isolated stands with little/no planting that are likely to have considerable local adaptation) and should be maintained.</p>	
Structure and function (including its typical species)	Root zones of ancient trees	Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an un-compacted condition	<p>The management of land within and around forest habitats which are characterised by ancient trees can be crucial to their individual welfare and long-term continuity, and the landscape they are part of can be just as or even more important. The condition of the soil surrounding such trees will affect their roots, associated mycorrhizal fungi and growth. Plants have difficulty in compacted soil because the mineral grains are pressed together, leaving little space for air and water which are essential for root growth. Unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees.</p> <p>No survey of ancient trees within the SAC has been carried out so the number and distribution are unknown.</p>	
Structure and function (including its	Soils, substrate and nutrient	Maintain the properties of the underlying soil types, including structure, bulk density, total	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species	National Soil Map of England and Wales – NATMAP (see

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)	cycling	carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	http://www.landis.org.uk/data/natmap.cfm)
Structure and function (including its typical species)	Tree and shrub species composition	Restore a canopy and understorey of which 95% is composed of site native trees and shrubs, including: sessile oak <i>Quercus petraea</i> , pedunculate oak <i>Quercus robur</i> , downy birch <i>Betula pubescens</i> , ash <i>Fraxinus excelsior</i> , rowan <i>Sorbus aucuparia</i> , hazel <i>Corylus avellana</i> , holly <i>Ilex aquifolium</i> .	Native trees and shrubs in general support a greater diversity of associated species than non-native species, especially amongst groups of invertebrates which depend directly on trees for food and shelter. There are many plants and animals which use or co-exist with non-native trees, but many rare and threatened woodland species are specialists adapted to one or a few native trees or shrub species (birches, willows and oaks, are examples of trees that host many specialist insect species). Target set to Restore because some stands of sessile oak have abundant beech <i>Fagus sylvatica</i> and rhododendron <i>Rhododendron ponticum</i> growing in the under-story. Without intervention beech will eventually become established in the canopy and significantly alter the canopy composition of what are currently sessile oak stands. Sycamore <i>Acer pseudoplatanus</i> , beech <i>Fagus sylvatica</i> and sweet chestnut <i>Castanea sativa</i> may also be treated as 'naturalised' species and their presence should not be regarded negatively <i>per se</i> provided this does not threaten the abundance of sessile oak in the woodland canopy.	Component SSSI citations (available on Natural England's Designated Sites System) NATURAL ENGLAND, 2009. <i>Natural England Technical Information Note TIN053. Guidance on dealing with the changing distribution of tree species</i> . Available at: http://publications.naturalengland.org.uk/publication/31012 RODWELL, J.S. 1991 <i>British Plant Communities Volume 1: Woodland and scrub</i> , Rodwell, 1991. Cambridge University Press
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat; Structural: sessile oak <i>Quercus petraea</i> Site-distinctive: Bryophyte Assemblage,	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include; • Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • Influential species which are likely to have a key role	Favourable Condition Tables for component SSSIs (available from Natural England on request) and component SSSI citations (available on Natural England's Designated Sites System)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>including: Welsh pocket-moss <i>Fissidens celticus</i>, Curnow's pocket-moss <i>F. curnovii</i>, spotty featherwort <i>Plagiochila punctata</i>, prickly featherwort <i>P. spinulosa</i>, rustwort <i>Nowellia curvifolia</i> and squirrel-tail moss <i>Leucodon sciuroides</i>.</p> <p>Lichen Assemblage, including: <i>Degelia atlantica</i>, <i>Enterographa hutchinsiae</i>, <i>Lobaria pulmonaria</i>, <i>L. scrobiculata</i>, <i>Nephroma laevigatum</i>, <i>Pannaria rubiginosa</i>, <i>Sticta limbata</i>, <i>S. sylvatica</i> and <i>Usnea articulata</i>.</p> <p>Vascular Plant Assemblage, including: Devon whitebeam <i>Sorbus devoniensis</i> bastard balm <i>Melitiss melissophullum</i></p>	<p>affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat)</p> <ul style="list-style-type: none"> • Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. <p>There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available.</p>	
Structure and function (including its typical species)	Vegetation community composition	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types:</p> <ul style="list-style-type: none"> • W10 <i>Quercus robur</i> – <i>Pteridium aquilinum</i> – <i>Rubus fruticosus</i> woodland • W11 <i>Quercus petraea</i> – <i>Betula pubescens</i> – <i>Oxalis acetosella</i> woodland • W17 <i>Quercus petraea</i> – <i>Betula pubescens</i> – 	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).</p> <p>The woodlands within this SAC have not been subject to any comprehensive NVC survey. The NVC types suggested for this</p>	<p>Component SSSI citations (available on Natural England's Designated Sites System)</p> <p>RODWELL, J.S. 1991 <i>British Plant Communities Volume 1: Woodland and scrub</i>, Rodwell, 1991. Cambridge University Press</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<i>Dicranum majus</i> woodland.	target are inferred from descriptions of species composition given in the relevant component SSSI citations.	
Structure and function (including its typical species)	Vegetation structure - age class distribution	Maintain at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees.	A distribution of size and age classes of the major site-native tree and shrub species that indicate the woodland will continue in perpetuity, and will provide a variety of the woodland habitats and niches expected for this type of woodland at the site in question.	Condition assessments within component SSSIs (available on Natural England's Designated Sites System)
Structure and function (including its typical species)	Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the feature, which will typically be between 30-90% of the site	Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages. Woodland canopy density and structure is important because it affects ecosystem function and in particular microclimate, litter-fall, soil moisture, nutrient turnover and shading; this in turn influences the composition of plants and animals in lower vegetation layers and soil. Open canopies with just scattered trees will have less of a woodland character and reduced diversity of woodland-dependent species (although they may be still be important as a form of woodland-pasture). Completely closed canopies across the whole woodland are not ideal either however, as they cast heavier shade and support fewer species associated with edges, glades and open grown trees, and have little space where tree regeneration could occur. In general, the woodland canopy of this feature should provide a core of woodland interior conditions with some open and edge habitat as well.	Favourable Condition Tables (FCT) for component SSSIs (available from Natural England on request). JNCC, 2004. <i>Common Standards Monitoring Guidance for Woodland Habitats. Version February 2004.</i> Available at: http://jncc.defra.gov.uk/page-2238
Structure and function (including its typical species)	Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m ³ per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. Dead and actively decaying wood, either as part of a standing tree or as a fallen tree on the woodland floor, is an important component of woodland ecosystems, and supports a range of specialist invertebrates, fungi, lichens and bryophytes, and associated hole-nesting birds and roosting bats, all of which may be very typical of the feature.	Condition assessments within component SSSIs (available on Natural England's Designated Sites System).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Vegetation structure - old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).	Good woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. For this habitat type, old or over-mature elements of the woodland are particularly characteristic and important features, and their continuity should be a priority.	Condition assessments within component SSSIs (available on Natural England's Designated Sites System). SMITH, J., 2006. <i>Woodland Survey: Marsland to Clovelly Coast Site of Special Scientific Interest (SSSI)</i> . Mosaic Mapping, unpublished. Available from Natural England on request.
Structure and function (including its typical species)	Vegetation structure - shrub layer	Maintain an Understorey of shrubs covering 20 - 60% of the stand area (this will vary with light levels and site objectives)	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.	Favourable Condition Tables (FCT) for component SSSIs (available from Natural England on request). JNCC, 2004. <i>Common Standards Monitoring Guidance for Woodland Habitats. Version February 2004</i> . Available at: http://jncc.defra.gov.uk/page-2238
Structure and function (including its typical species)	Vegetation structure - woodland edge	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.	Woodland edge is defined as being the transitional zone between the forest feature and adjacent but different habitat types - the best woodland edges will have a varied structure in terms of height and cover. Many typical forest species make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations. Grasslands / arable fields managed with high doses of agro-chemicals could potentially not allow this gradation of woodland edge and could have other impacts on the integrity of the site (pollution/ nutrient enrichment etc). Graduated woodland edges within this SAC are limited to the seaward end of valley woodlands and the lower-slope (shore-line) margins and lateral edges of stands on maritime-slopes where exposure to westerly gales is greatest. Occasionally	NVC surveys (see sources in 'Extent' attribute in Tables 1 - 3), aerial photographs, Ordnance Survey maps.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			there are open, scrubby areas maintained adjacent to sessile oak stands for the benefit of particular species or groups (e.g. fritillary butterflies). Elsewhere woodland edges are more abrupt where they abut agricultural land on the landward edge of the SAC boundary; this need not be considered problematic provided the graduated woodland edges at the locations referred to above are maintained.	
Supporting processes (on which the feature relies)	Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	<p>This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.</p> <p>Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH₃), oxides of nitrogen (NO_x) and sulphur dioxide (SO₂), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis.</p> <p>Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p> <p>Critical levels for acid deposition, oxides of nitrogen (NO_x) and sulphur dioxide (SO₂) are not exceeded at this SAC for this habitat type.</p> <p>Levels of nutrient nitrogen deposition and ammonia (NH₃) exceed the maximum critical loads / concentrations for old</p>	<p>More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).</p> <p>NATURAL ENGLAND, 2015. <i>Tintagel - Marsland - Clovelly Coast Site Improvement Plan. Version 1.0</i>. Available at: http://publications.naturalengland.org.uk/publication/5064451946446848</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			sessile oak woods at this SAC. Based upon this, the target is set to restore to at or below site-relevant critical loads / levels of air pollutants for this habitat.	
Supporting processes (on which the feature relies)	Hydrology	At a site, unit and/or catchment level maintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts. This is included as disruption/ damage to hydrological processes could be caused by activities at some distance from the site boundary, e.g. through extraction of ground or surface waters; diverting or damming river channels; pollution of water source; channel alignment that disrupts natural geomorphological processes; tunnelling <i>etc.</i>	
Supporting processes (on which the feature relies)	Illumination	Ensure artificial light is maintained to a level which is unlikely to affect natural phenological cycles and processes to the detriment of the feature and its typical species at this site.	Woodland biodiversity has naturally evolved with natural patterns of light and darkness, so disturbance or modification of those patterns can influence numerous aspects of plant and animal behaviour. For example, light pollution (from direct glare, chronically increased illumination and/or temporary, unexpected fluctuations in lighting) can affect animal navigation, competitive interactions, predator-prey relations, and animal physiology. Flowering and development of trees and plants can also be modified by un-natural illumination which can disrupt natural seasonal responses. No assessment of levels of artificial light are available for the site, though it should be noted that stands of old sessile oak woods at this SAC are distant from substantial settlements such that levels of artificial light are likely to be low.	
Version Control Advice last updated: 27 February 2019 . Following stakeholder comments additional detail on the genetic integrity of sessile oak has been added to the ' Regeneration potential ' attribute.				
Variations from national feature-framework of integrity-guidance: Reference to regeneration from pollarding of veteran trees has been removed from the 'Supporting and Explanatory Notes' for the attribute ' Regeneration potential '				

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<p>because of concerns that such management may be inappropriate on nature conservation grounds (this can remove important niches and risks killing ancient/veteran trees) and in any case the practice of pollarding is not known to have been carried out within the oak woodlands in this SAC.</p> <p>The lower target range for attribute 'Vegetation structure - canopy cover' is revised from 40% to 30% in order to be consistent with targets in the Favourable Condition Tables (FCT) for component SSSIs, which in turn are based upon the default lower target range in Common Standards Monitoring Guidance for Woodland Habitats, JNCC, 2004.</p> <p>The attribute 'Vegetation structure - open space' has been removed from this table given that stands of old sessile oak woods within this SAC are generally located on steep slopes with minimal woodland rides such that the creation or maintenance of open space within stands (permanent or temporary) is impractical. The narrow/linear shape of sessile oak stands due to the physical constraints of their valley or coastal slope locations means the creation of open space in such linear stands may disrupt habitat connectivity. In any case, such linear morphology results in plentiful woodland edge. Temporary open space may be created by natural processes such as land-slips or 'wind-throw'. The restoration of adjacent Plantations on Ancient Woodland or the enhancement of secondary sycamore woodland may offer opportunities to create open space on the edge of old sessile oak stands.</p> <p>For the attributes 'Adaptation and resilience' and 'Tree and shrub species composition' the significance of retaining canopy dominance of sessile oak is emphasised given the definition of the Annex 1 habitat type 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles.</p> <p>Reference to montbretia and the effects of pheasant rearing/release pens have been added to the 'Supporting and Explanatory Notes' for the attribute 'Invasive, non-native and/or introduced species' as these have been identified as site-specific issues at this SAC.</p>			